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THINKING OUTSIDE OF THE BOX: DETERMINING STUDENTS' LEVEL OF CRITICAL THINKING SKILLS IN TEACHING AND LEARNING

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ABSTRACT

This paper discusses the level of critical thinking skills adapted from The Cornell Critical Thinking Test Level X (CCTTX) by Ennis and Milan (1985) among final year diploma students from the Faculty of Business Management, UiTM Melaka taking the course of Office Administration and Introduction to Critical Thinking. This paper aims to encourage students to become critical thinkers and to provide lecturers with the best approach to develop students' critical thinking skills at tertiary level. Findings have shown that their critical thinking ability ranged from low to moderate level. Thus, strategies of teaching and learning which stresses on student-centered learning must be adopted to stimulate student's thinking by encouraging critical and creative thinking and the construction of new knowledge. 61 students taking Diploma in Office Management and Technology were chosen as samples of this study. The data was collected through observation and classroom based activities namely debates, discussions, article analysis, problem-solving situations and case studies.

Keywords: *critical thinking skills, student-centered learning, new knowledge construction, graduate marketability*

INTRODUCTION

Can our university students actually think outside of the box? Or are they merely regurgitating facts, recycling ideas and passive recipients of knowledge? These are just some of the questions encircling every educator's minds when it comes to students' ability to think critically. Our education system is often being blamed for the poor thinking skills of future graduates apart from the lack of exposure and opportunity for students to practise critical thinking skills in the classroom. As a result, graduates emerging from the Malaysian education system failed to meet the expectations of employers due to a lack of critical thinking skills (CTS) and poor communication skills making them unable to adapt to the demands of the working world attributing to the main cause of the high employment rate in our country (Rosyati & Rosnah, 2008). This is often the common grouses of prospective employers on graduate's capability to think critically and the lack of proficiency in English limits their ability to produce innovative and creative ideas since our current education system is said to be too exam-oriented and theory based. (Norshima, 2011).

The pressure and over-reliance to get good grades have aggravated the situation as students become rote learners, merely accepting what is being fed to them, seeing their lecturers or teachers as disseminators of knowledge that should not be questioned. They are churned to become followers and having a limited worldview due to the exam-oriented system that puts academic achievement at a pedestal. This has incapacitated their capability to vocalize their thoughts confidently and to think from different perspectives thus reducing their employability in the eyes of prospective employers in Malaysia (The Star, 2012). Thus, our future graduates are often compared with young professionals from abroad as they are more advanced in critical thinking, more innovative, display a more global mindset and show understanding of the moving trends in the world.

With the advent of technology and the rapidly changing global environment, CTS is regarded as an extra edge for graduates these days as they will be able to keep up with the technological innovations and have better chances at employability. They are expected to develop generic skills such as creative thinking, problem solving and analytical skills to enable them to function productively in society and the workplace. To ensure that

Vision 2020 is met, Malaysia needs active learners who have acquired the skills of problem solving, independent thinking, and autonomous learning as well as the abilities to work co-operatively (Lee, 1999, as cited in Norshima, 2011). In line with this, the aim of teaching CTS in higher education is to enhance students' thinking skills and is essential for good and apt decision making and understanding of problematic issues (Aziz, Safiah & Zanariah, 2011). Research has also revealed that individuals who have been taught to think critically in their education years will demonstrate more professionalism in the use of ideas, assumptions, inferences and intellectual processes (Nikoopour, Mohamad Amini and Maryam, 2011). Only then students are more capable of giving responses and ideas which are outside the borders of the textbook or what is given by their lecturers in the classroom.

PROBLEM STATEMENT

Despite the many initiatives and concerted efforts by the Ministry of Education to embed and infuse critical thinking skills in the syllabi and courses in all levels of education, students are still lacking in this soft skill. A study on the state of critical thinking among Malaysian students revealed that after eleven years of schooling, students are still unable to apply critical thinking in their schools or real world situation (Rosnah and Suhailah, 2003; Konting et.al, 2007 as cited in Ibrahim, Kamariah, Nor Hayati & Othman, 2013). This is further reiterated in a large scale study by Aliah Suraya Mohd Yunus et.al (2005, as cited in Rosyati & Rosnah, 2008) to determine the critical thinking ability and skills of undergraduates from seven public universities in Malaysia. It was found that the critical thinking ability of these undergraduates was at a low moderate level. Another study by Nuraihan and Zamnah (2004) on Malaysian and international students from International Islamic University Malaysia also indicates the critical thinking ability of Malaysian undergraduates was comparatively low compared to their international counterparts.

What is more worrying is that employers have expressed their dissatisfaction towards the capability of our local graduates to think outside of the box apart from having a good English command as asserted by a manager from Manpower Staffing Services (M) Sdn Bhd, Sam Haggag. He

claims that the education system does not place enough focus on equipping undergraduates with skills that will enable them to think critically and adapt to the demands of the working world. The system also focuses on individual achievement less than on team performance resulting in rare opportunities for students to acquire interactive skills (The Star, 2012).

Critical thinking skills is a skill that can be taught and refined with the right methodology and proper guidance by lecturers or teachers to their students although students themselves do have a natural ability to think critically (Choy & Phaik, 2009). Henceforth, lecturers should look into their teaching approaches and practices in the classroom to ensure they are exercising and cultivating critical thinking with their students regardless of the subjects they are teaching be it language, business or office administration. Most often the case, teachers frequently see the classroom as “communication-centered” or ‘grammar-focused and should be dominated by ‘teacher talk’ which does not create an environment for students to be independent and active learners. The traditional, monotonous lecture routine should be broken down whereby activities which focuses more on student-centered activities with the infusion of CTS should be highly incorporated in the lessons. Rote-learning and memorization should also be discarded and more emphasis given on active learning which allows students to take a center-stage in learning, decide the best way to learn and for lecturers to implement activities which requires them to develop their thinking skills and ability to look at ideas or views from different angles.

CRITICAL THINKING IN HIGHER EDUCATION

Teaching students how to think critically has become a global concern in higher education. In Malaysia, the Ministry of Higher Education (MOHE) has listed critical thinking skills as one of the seven skills that students need to develop during their tertiary education. As mandated by MOHE, the integration of CTS in the Malaysian higher education has been implemented since 2008. Hence, it is timely to measure students’ attainment level of CTS in order to investigate the successful implementation of the policy.

OBJECTIVES OF THE STUDY

The aim of this paper is to ascertain the level of critical thinking skills of final year Office Management students from the Faculty of Business Administration who are pursuing their diploma at UiTM Alor Gajah, Melaka. It is also to address the needs for university students to equip themselves with critical thinking skills throughout their academic years so that they are able to utilize this skills to meet the global challenges and subsequently changing environment in the workplace. Besides, critical thinking is known as one of the vital attributes that help workers improve their career development and viability in the workplace (Serrat, 2009, as cited in Nor Lisa Sulaiman, 2012). In addition, factors that may contribute to the inability for students to think outside the box apart from providing lecturers the best approach to develop students' critical thinking skills at tertiary level will be the focus of this study.

LITERATURE REVIEW

Introduction

The lecture format of learning is a popular approach to content delivery in higher education. However, it frequently does not encourage active learning or critical thinking on the part of students. Those new to the teaching profession often adopt the lecture format because it is both teacher-centered and comes with a strong academic tradition. Unfortunately, it is very difficult to increase a student's critical thinking skills with the lecture format. Topics are discussed sequentially rather than critically, and students tend to memorize the material since the lecture method facilitates the delivery of large amounts of information. The student is placed in a passive rather than an active role since the teacher does the talking, the questioning, and, thus, most of the thinking (Maiorana, 1991).

To link critical thinking skills to content, the instructional focus should be on the process of learning. How will the students get the information? Research supports the premise that lecture and memorization do not lead to long-term knowledge or the ability to apply that knowledge to new situations (Celuch & Slama, 1999; Daz-Iefebvre, 2004; Kang & Howren,

2004). Traditional instructional methods use too many facts and not enough conceptualization; too much memorizing and not enough thinking. Therefore, lecture and rote memorization do not promote critical thinking.

Definition of Critical Thinking

The definition of critical thinking can be seen from two different perspectives. It can be either in form of philosophical approach or cognitive psychological approach.

Philosophical Approach

The writings of Socrates, Plato, Aristotle, and more recently, Matthew Lipman and Richard Paul, exemplify the philosophical approach. This approach focuses on the hypothetical critical thinker, enumerating the qualities and characteristics of this person rather than the behaviors or actions the critical thinker can perform (Lewis & Smith, 1993; Thayer-Bacon, 2000). Sternberg (1986) has noted that this school of thought approaches the critical thinker as an ideal type, focusing on what people are capable of doing under the best of circumstances. Accordingly, Paul (1992) discusses critical thinking in the context of “perfections of thought”.

Cognitive Psychological Approach

The cognitive psychological approach contrasts with the philosophical perspective in two ways. First, cognitive psychologists, particularly those immersed in the behaviorist tradition and the experimental research paradigm, tend to focus on how people actually think versus how they could or should think under ideal conditions (Sternberg, 1986). Second, rather than defining critical thinking by pointing to characteristics of the ideal critical thinker or enumerating criteria or standards of “good” thought, those working in cognitive psychology tend to define critical thinking by the types of actions or behaviors critical thinkers can do. Typically, this approach to defining critical thinking includes a list of skills or procedures performed by critical thinkers (Lewis & Smith, 1993).

Techniques that Encourage Critical Thinking

Active learning can make the course more enjoyable for both teachers and students, and, most importantly, it can cause students to think critically. For this to happen, educators must give up the belief that students cannot learn the subject at hand unless the teacher covers it. While it is useful for students to gain some exposure to the material through pre-class readings and overview lectures, students really do not understand it until they actively do something with it and reflect on the meaning of what they are doing. There have been many definitions of critical thinking over the years. Norris (1985) posited that critical thinking is deciding rationally what to or what not to believe. Elder and Paul (1994) suggested that critical thinking is best understood as the ability of thinkers to take charge of their own thinking. Harris and Hodges (1995) stated critical evaluation as the process of arriving at a judgment about the value or impact of a text by examining its quality.

The taxonomy offered by Benjamin Bloom some 50 years ago offers a straightforward way to classify instructional activities as they advance in difficulty (Bloom, 1956). The lower levels require less thinking skills while the higher levels require more. The theory of critical thinking began primarily with the works of Bloom (1956), who identified six levels within the cognitive domain, each of which related to a different levels of cognitive ability. Knowledge focused on remembering and reciting information. Comprehension focused on relating and organizing previously learned information. Application focused on applying information according to a rule or principle in a specific situation. Analysis was defined as critical thinking focused on parts and their functionality in the whole. Synthesis was defined as critical thinking focused on putting parts together to form a new and original whole. Evaluation was defined as critical thinking focused upon valuing and making judgments based upon information.

Barriers to Critical Thinking

Several researchers (Landsman & Gorski, 2007; Sandholtz, Ogawa, & Scribner, 2004; Sheldon & Biddle, 1998; Wong, 2007) suggest that the current educational trend to standardize curricula and focus on test scores undermines instructors' ability to address critical thinking in the classroom. The emphasis on "teaching to the test" distracts the learning process from

student-centered instruction and places the emphasis on the content. If the focus is on learning, students should be given the freedom to explore content, analyze resources, and apply information. Unfortunately, students are not typically taught to think or learn independently, and they rarely “pick up” these skills on their own (Ladsman & Gorski, 2007; Lundquist, 1999; Rippen, Booth, Bowie, & Jordan, 2002). Critical thinking is not an innate ability. Although some students may be naturally inquisitive, they require training to become systematically analytical, fair, and open-minded in their pursuit of knowledge. With these skills, students can become confident in their reasoning and apply their critical thinking ability to any content area or discipline (Lundquist, 1999). Critical thinking is often compared to the scientific method; it is a systematic and procedural approach to the process of thinking (Scriven & Paul, 2007). Just as students learn the process of the scientific method, they must also learn the process of critically thinking. Four barriers often impede the integration of critical thinking in education: namely, lack of training, lack of information, preconceptions, and time constraints.

First, teachers often are not trained in critical thinking methodology (Broadbear, 2003). Elementary and secondary teachers know their content and receive training in the methods of instruction, but little if any of their training is devoted specifically to how to teach critical thinking skills. Post-secondary instructors pursue additional content-based instruction during graduate school, but often have no formal methodological training, much less skill-based instruction.

Second, few instructional materials provide critical thinking resources (Scriven & Paul, 2007). Some textbooks provide chapter-based critical thinking discussion questions, but instructional materials often lack additional critical thinking resources.

Third, both teachers and students have preconceptions about the content that blocks their ability to think critically about the material. Preconceptions such as personal bias partiality prohibits critical thinking because they obviate analytical skills such as being fair, open-minded, and inquisitive about a topic (Kang & Howren, 2004).

Finally, time constraints are barriers to integrating critical thinking skills in the classroom. Instructors often have a great deal of content to cover within a short time period. When the focus is on content rather than student learning, shortcuts such as lectures and objective tests become the norm. Lecturing is faster and easier than integrating project-based learning opportunities. Objective tests are faster to take (and grade) than subjective assessments. However, research indicates that lecturing is not the best method of instruction, and objective tests are not the best method of assessment (Broadbear, 2003; Brodie & Irving, 2007).

METHODOLOGY

Introduction

The main focus of this section is the research methodology adopted for the current study. In general, this section discusses the research design followed by a description of the subjects and sampling, criteria for selecting the subjects, instruments used to collect data, the data collection procedure and the analysis of the data.

Research Design

This study is to determine students' level of critical thinking in teaching and learning. This qualitative case study and with the analysis method, it helps to explain both the process and outcome of the real-life phenomenon through a complete observation. According to Erickson and Nosanchuk (1983), "a case study is a unique way of observing any natural phenomenon which exists in a set of data".

Subjects and Sampling

The subjects are from a homogeneous group of students. They are all Malays and they have a similar background. This group of students is still undergoing their diploma course in Office Management and Technology and they are in their fifth semester. English language is not their mother tongue but they acquire it as their second language. The purpose of knowing these students is to minimize the problem in validating their physical identities because actual age or gender could be easily falsified in the virtual environment.

Instrumentation

According to Erickson and Nosanchuk (1983), case study research method can be in the form of single-case or multiple-case design depending on the issue in question and if the events are limited to a single occurrence. The events will be observed, data will then be collected, and information will also be analysed based on the results over a period of fourteen weeks. The collected data through observation will be recorded to ascertain the differences and similarities regarding level of critical thinking in teaching and learning used by the users. There is a chain of evidence from the direct observation which is the main source of data will be obtained as a proof of what happened in the classroom. Users' answers will be compiled and analyzed accordingly to view their level of critical thinking in answering questions during class activities.

Apart from that, Direct-Observation was also be used to watch and record the students' response towards critical questions or activities used during the class session. Direct observation involves the physical presence of the researchers to observe and record events both verbal and non-verbal as they occur. Jordan, Hauser and Foster (2003), had pointed out that, this is "the greatest asset or unique element of observation over other data collection device". From Direct-Observation method, the researchers were able to get first-hand information, besides, it was simple to use and it verifies data from other sources as well. It is also a study of human behavior as the old adage 'seeing is believing' is very much applicable.

Data Collection Procedure

Primary sources of data were be used in this study to identify the level of critical thinking skills among students. The primary data refers to the answers that students give during class activities.

There are 61 students from Diploma in Office Management and Technology involved in this study. These students need to get involved in a few class activities such as case study exercise, critical thinking game and quizzes. Based on their answers the researchers will then analyze their level of applying critical thinking skills in the class.

Analysis of Data

This section discusses the analysis and interpretation of the data that will be collected for this study. The data will be gathered from the answers that students respond during classroom activities. The series of answers will be plotted into content theory table and then will be analyzed by the researchers. First of all, the researchers will design a set of class activities such as movie reviews, problem-based tasks, debate or role play that relate to critical thinking approach. All students from the homogenous group will take part in these activities. The answers from the students will be gathered and then analyzed by the researcher.

DISCUSSION

The lecturer's role in encouraging critical thinking among students in the classroom is of utmost importance. Therefore, lecturers need to master the subject matter well and also organize and construct their instructional practices as the manner in which information is conveyed to students may affect the students' ability to think critically.

Through the researchers' observation and classroom-based activities being conducted, it was found that the critical thinking level of students of Diploma of Office Management was at a low or moderate level. This correlates with the study done by Aziz, Safiah and Zanariah (2011) to assess the level of attainment of critical thinking skills among final year engineering students from four Malaysian Technical Universities. Although they exhibit some proficiency in critical thinking however, it was considerably low particularly in their analysis, interpretation and evaluation skills. Furthermore, another study conducted by Rosyati and Rosnah (2008) attests to the fact that Malaysian undergraduates indeed have a low critical thinking ability in spite of the questionnaire being used, Cornell Critical Thinking Test (CCTT) Level X was translated into Bahasa Malaysia to cater to the students' language competency in their study.

The researchers have incorporated a variety of activities to not only focus on content knowledge but also to cultivate students' critical thinking. They have discovered through observation and students' performance in

the classroom that majority of them need to be prompted and guided by the lecturer whenever a problem-solving task or a case study is given to them. Their problem solving skills were rather weak which is shown in the response given by them to the tasks given as they only gave surface responses and use information ready at hand. When it comes to bringing in their basic knowledge of an issue or subject matter, most of them were unable to clearly verbalize their thoughts due to their language limitation and lack of knowledge of the issue being discussed.

Another noticeable observation was the students gave opinions in the form of “I agree/disagree” without providing valid reasons to support their preferences and will only do so when the lecturer required them to. It seemed that they were only capable of giving responses by echoing views from Internet resources which are the main source of information for them. Evaluative and analytical thinking were rather absent. This might be because at diploma level, generally students are more exposed to build their knowledge and comprehension that the ability for them to apply and analyze are lacking due to insufficient practice in the classroom and theory-based lessons.

One of the ways to get students to think critically is to encourage debate activities in the classroom as it involves arguments and research. In debate, students will actively absorb information, evaluate their work, value others’ point of view, and express their thoughts and opinions to their peers using credentialed sources (Kennedy, 2007, as cited in Nor Lisa Sulaiman, 2012). Engaging in debate was part of their assessment for the critical thinking subject. They managed to display a certain degree of research skill however; they merely repeated ideas or points given from their resources without critically reading and injecting their own perspective of the issue. Only 1 or 2 students were able to show some attempt to infuse their own ideas and blend them with the ideas that they have researched for.

Besides that, the use of movies can also be adapted to suit the learning objectives, class situations and students’ schemata. Movies provide a highly motivating atmosphere for classroom learning (Burt, 2000) and may trigger class discussions, debates and application to daily life based on individual reactions to particular scenarios. Students then can be taught to interpret the movie explicitly and to analyze the movie with a critical eye.

Both researchers encourage the questioning technique in the classroom to elicit feedback and to stimulate students' thinking. Nevertheless, only a few of the students took part as most of them prefer to be passive listeners and do not have the confidence to express their opinions. This might be due to their low proficiency in English which act as a setback for them to confidently express their thoughts.

It was also observed that students are contented when the lecturer conveys most of the information and notes in class. This shows an over-reliance on lecturers as disseminators of knowledge. Most of them find it difficult to switch from the spoon-feeding culture where lecturers provide them with class notes and adopt the teacher-centered approach.

Among the factors that the researchers perceive that will contribute to this problem is the heavy focus on written examinations to assess a students' academic performance. This makes students feel that the outcome of learning is to get good grades to indicate their academic excellence and mastery of a subject. Our examination-oriented education system has also contributed to this problem whereby even though it is included in the Malaysian education policy, its achievement and implementation are unclear. A study by Choy and Cheah (2009) can be taken as a basis to support this claim which indicated that Malaysian teachers in higher education are still lacking in understanding and applying critical thinking to their current instructional methods. This is due to expectations of content delivery, traditional classroom physical structures, lack of training and perceptions that students will not participate.

A learning environment which does not mould students to be critical thinkers will have an impact on students' critical thinking ability. Hence, activities that will trigger students' cognitive abilities and higher order thinking skills should be emphasized in class to produce thinking students instead of regurgitators of information with a limited worldview of an issue.

RECOMMENDATIONS

To enable students to think critically, teachers must be critical thinkers themselves (Kincheloe, 2004). Yet, teachers may presume their job is only to provide students with content information, without understanding

the importance of facilitating experiences for students to develop and improve their thinking (Jensen et al, 2012). By preparing positive classroom climates that include inquiry and problem solving processes, students will be motivated to maximize their learning and experience to enhance their critical and reflective abilities (Timpson & Burgoyne, 2002). Lecturers themselves must constantly upgrade their knowledge and be clear of the meaning of critical thinking to be able to teach critical thinking to students.

Students should display more readiness to class by doing their own reading as a preparation of the chapter that the lecturer will be covering for the next lesson. It would be helpful if lecturers provide students with an outline of the chapters or topics that will be taught. Therefore, students should be trained to become independent learners and to do their own research outside of the classroom to gain a better comprehension of the subject. Lecturers on the other hand could prepare guided questions for the students to direct them to the subject that will be taught. For this reason, background knowledge is essential if students are to demonstrate their critical thinking skills (Case, 2005; Kennedy et al., 1991; Willingham, 2007). As McPeck (1990) has noted, to think critically, students need something to think critically about.

On the other hand, the questioning technique is regarded as the most effective strategy to enhance one's critical thinking skills. Socratic questioning is one of the ways to initiate two-way communication in the classroom. Lecturers must know how to construct their questions to lead students to think critically whilst students should be encouraged to ask questions in class. This is because questioning strategies encourage students to be active in classroom activities and to deepen their understanding (Weast, 1996, as cited in Nor Lisa Sulaiman, 2012).

Apart from that, lecturers too must display readiness in incorporating critical thinking within the lessons. This requires creativity and innovative skills of the lecturers to inject interesting and enjoyable activities to make the lesson appealing and participation on the students' part. Lecturers should be able to overcome time constraints and the need to complete the syllabi within the stipulated time that time is not given to cultivate students' thinking skills. Weak students especially those with a low proficiency in English need to improve their language command and constantly guided

to develop their critical thinking ability. They require repetitive practices and should be given constant exercises to shape them into critical thinkers.

Most importantly, students should be guided in completing a task given to increase their critical thinking ability and the use of visual aids to guide this process. This is to ensure that aside from inculcating critical thinking in the lesson, students enjoy the overall learning process. Only then, their critical thinking skills can be enhanced positively.

A replication and extension of this study should be conducted by including students from other faculties and to focus on students' perspective on critical thinking and the ways they would want lecturers to assist them to enhance their critical thinking abilities. There is a dire need to promote active learning to produce students who are independent in their way of thinking and learning. The lecturer should not only focus to complete the syllabi as stipulated by the university but to stress more on enhancing the students' critical thinking ability in the classroom. Critical thinking needs to be constantly practised as through this way, it will train students how to think, interpret, analyze and evaluate information that they receive.

CONCLUSION

Instructors are urged to provide explicit instruction in critical thinking, to teach how to transfer in new contexts, and to use cooperative or collaborative learning methods and constructivist approaches that place students at the center of the learning process. In constructing assessments of critical thinking, educators should use open-ended tasks, real-world or "authentic" problem contexts, and ill-structured problems that require students to go beyond recalling or restating previously learned information.

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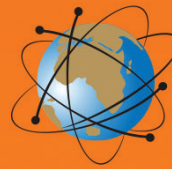
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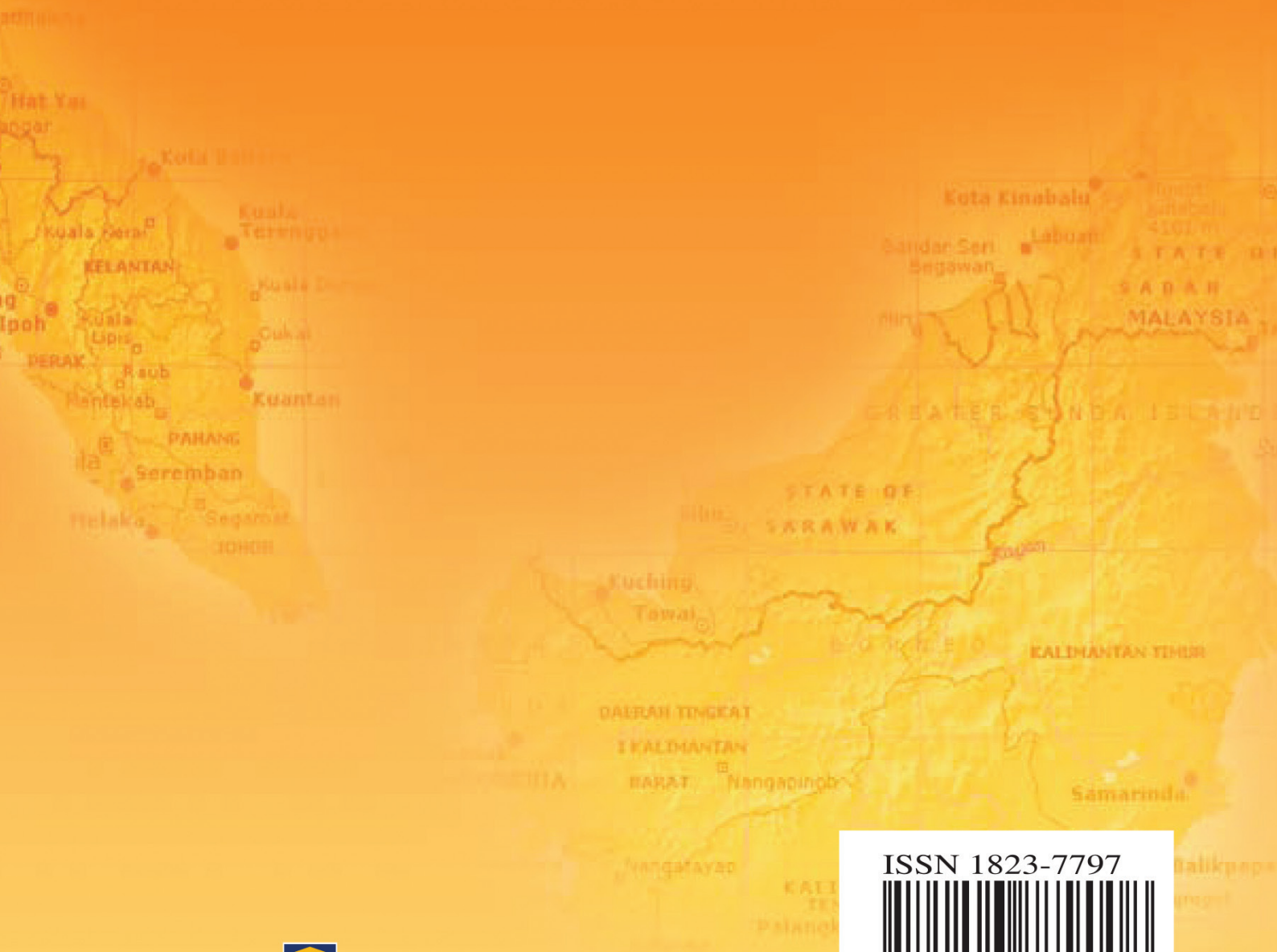
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